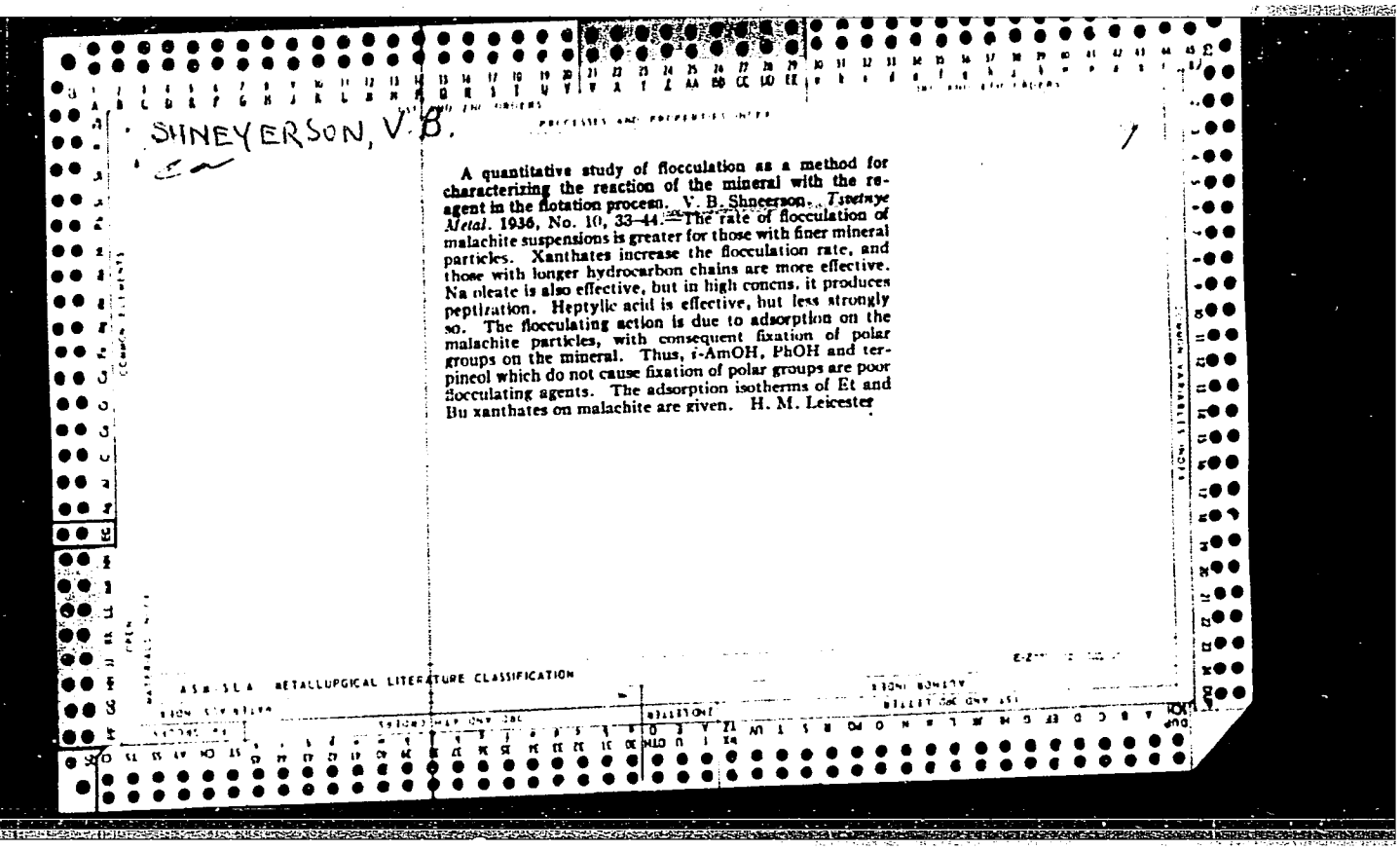
BOGDANOV, Pavel Fedorovich; SHNEYERSON, S.E., red.

[Controlling the quality of construction; practices of the Main Construction Administration of the city of Leningrad] Kontrol' kachestva stroitel'stva; opyt Glavleningradstroia. Leningrad, 1965. 45 p. (MIRA 18:5)



SHNEYERSON, V.B.

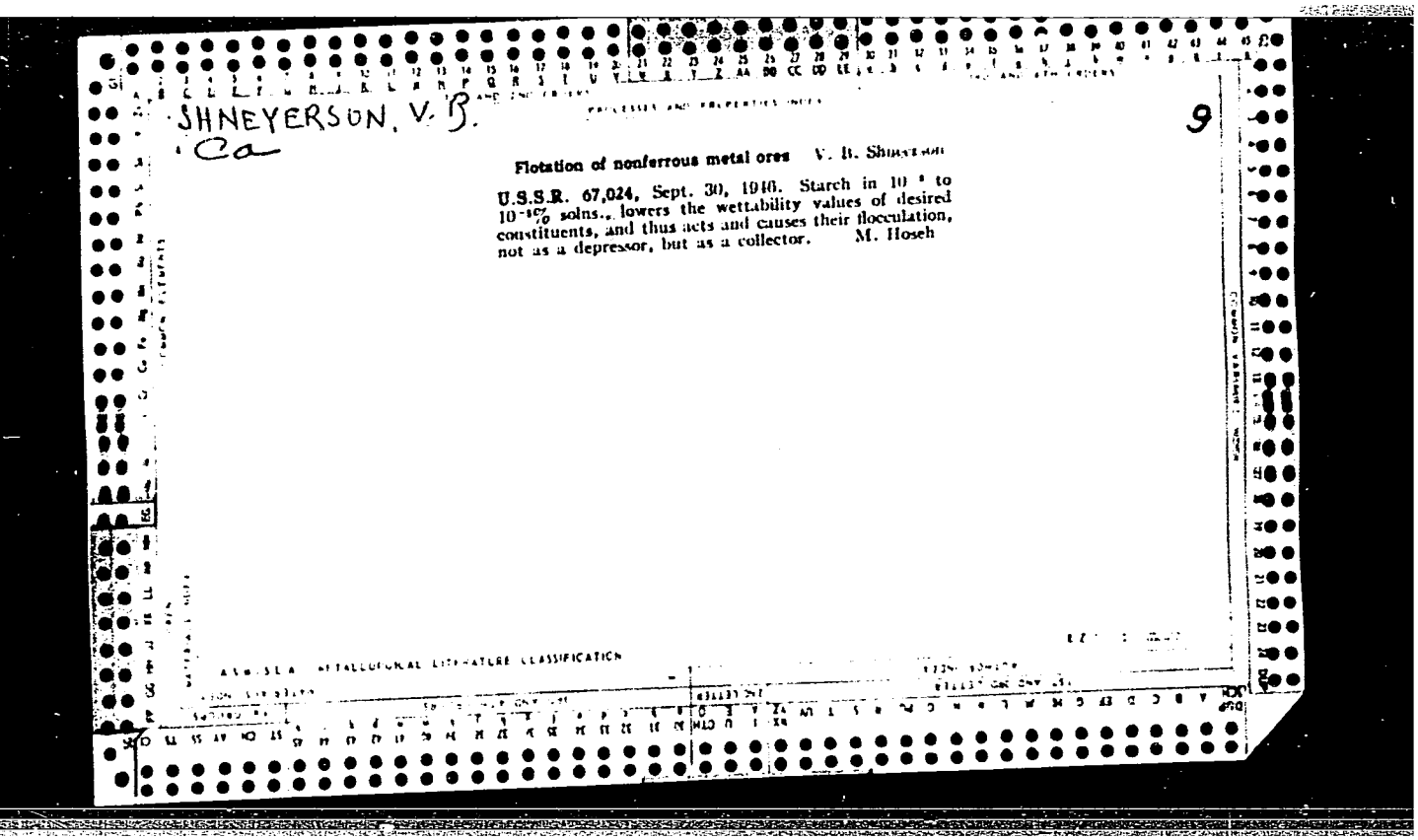
A quantitative study of flocculation as a method for characterizing the reaction of the mineral with the reagent in the flotation process. V. B. Shneerson. *Tsvetnye Metal.* 1936, No. 10, 33–44.—The rate of flocculation of malachite suspensions is greater for those with finer mineral particles. Xanthates increase the flocculation rate, and those with longer hydrocarbon chains are more effective. Na oleate is also effective, but in high concns. it produces peptization. Heptylic acid is effective, but less strongly so. The flocculating action is due to adsorption on the malachite particles, with consequent fixation of polar groups on the mineral. Thus, i-AmOH, PhOH and terpineol which do not cause fixation of polar groups are poor flocculating agents. The adsorption isotherms of Et and Bu xanthates on malachite are given. H. M. Leicester

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

SHNEYERSON, V. B., OLESYUK, A. D.

Candidate of Technical Sciences, Engineer. "The Use of Starch in Dehydration"
Tsvet. Met. 14, No 9, September 1939.

[redacted] Report U-1506, 4 Oct. 1951.



SHNEYERSON, V. B.
Ca

9

Flotation of nonferrous metal ores V. B. Shneyerson

U.S.S.R. 67,024, Sept. 30, 1946. Starch in 10^{-4} to 10^{-4}% solns., lowers the wettability values of desired constituents, and thus acts and causes their flocculation, not as a depressor, but as a collector. M. Hoseh

SHNEYERSON, V. B.

Chemical Abst.
Vol. 48
Apr. 10, 1954
Petroleum, Lubricants, and Asphalt

New method of investigating the hydrophobization of rocks under the influence of petroleum. V. B. Shneerson. *Trudy Inst. Nefti, Akad. Nauk S.S.S.R.* 1, No. 1, 83–95 (1949).—The surface characteristics of quartz and calcite were evaluated by a microscopic study of flocculation after the addn. of toluene solns. of petroleum from different areas in amts. of 0.001–100%. In all cases, the addn. of petroleum caused hydrophobization of the surface. The results were close for quartz and calcite. For 0.02–0.05% petroleum, there was practically no wetting with water and flocculation reached a high value. With 1–5% solns., there was no wetting with water and complete flocculation was observed. Higher concns. produced gluing of the particles. For very low concns. (0.001%), the role of the mol. nature of the minerals and of the specific effect of the petroleums became apparent. B. Z. Kamieh

9-16

SHNEYERSON, V.B.

Effects of petroleums on the surface properties of minerals in the petroleum bed rocks. V. B. Shneerson and N. P. Vasil'eva. *Trudy Inst. Nefti, Akad. Nauk S.S.S.R.* 3, 212–22 (1954).—All the crude oils investigated caused the surface of the minerals forming the reservoir rocks (calcite, feldspar, quartz) to become hydrophobic, the process occurring on the wet and dry surfaces. The wetting isotherms change depending on the petroleum type. The hydrophobic properties of the mineral surfaces depend on the formation of chemically fixed films, which are not wet with toluene. This film is the result of layer deposition of some of the oil components. The nature of this film is primarily detd. by the petroleum properties. The surface tension of very low-petroleum solns. (up to 0.1%) remains practically unchanged, while at higher concns. it changes analogously to the wetting isotherm. The lowest values represent the highest hydrophobicity and correspond to the optimum satn. of petroleum rocks with free polar mols. W. M. S.

SHNEYERSON, V. B.

USSR

Defoaming of salt solutions during coal beneficiation. E. I. Shmuk, A. Ya. Larin, and V. B. Shneerson (Inst. Fuel Minerals and Inst. Petroleum, Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1955, No. 1, 135–40.—The causes of foam stability and means of defoaming were investigated. A defoaming agent DS, consisted of salts of aromatic sulfoacids, obtained by the sulfonation of aromatic hydrocarbons in the kerosine-gas oil petroleum fraction, of a general formula $ArRSO_3Me$, where Ar and R are the aromatic and aliphatic radicals (the latter in the side chain). The salts investigated included the Na, Ca, Al, and NH_4 salts, and the Na and NH_4 salts were found to be the most effective. The optimum defoamer concn. for salt solns. was detd. by measuring the contact angle of the suspension medium with the coal.

W. M. Sternberg

62
2

USSR/Geology - Petroleum FD-2933

Card 1/1 Pub. 41-14/17

Author : Geyman, M. A., Shneyerson, V. B. and Mamikonov, A. G., Moscow

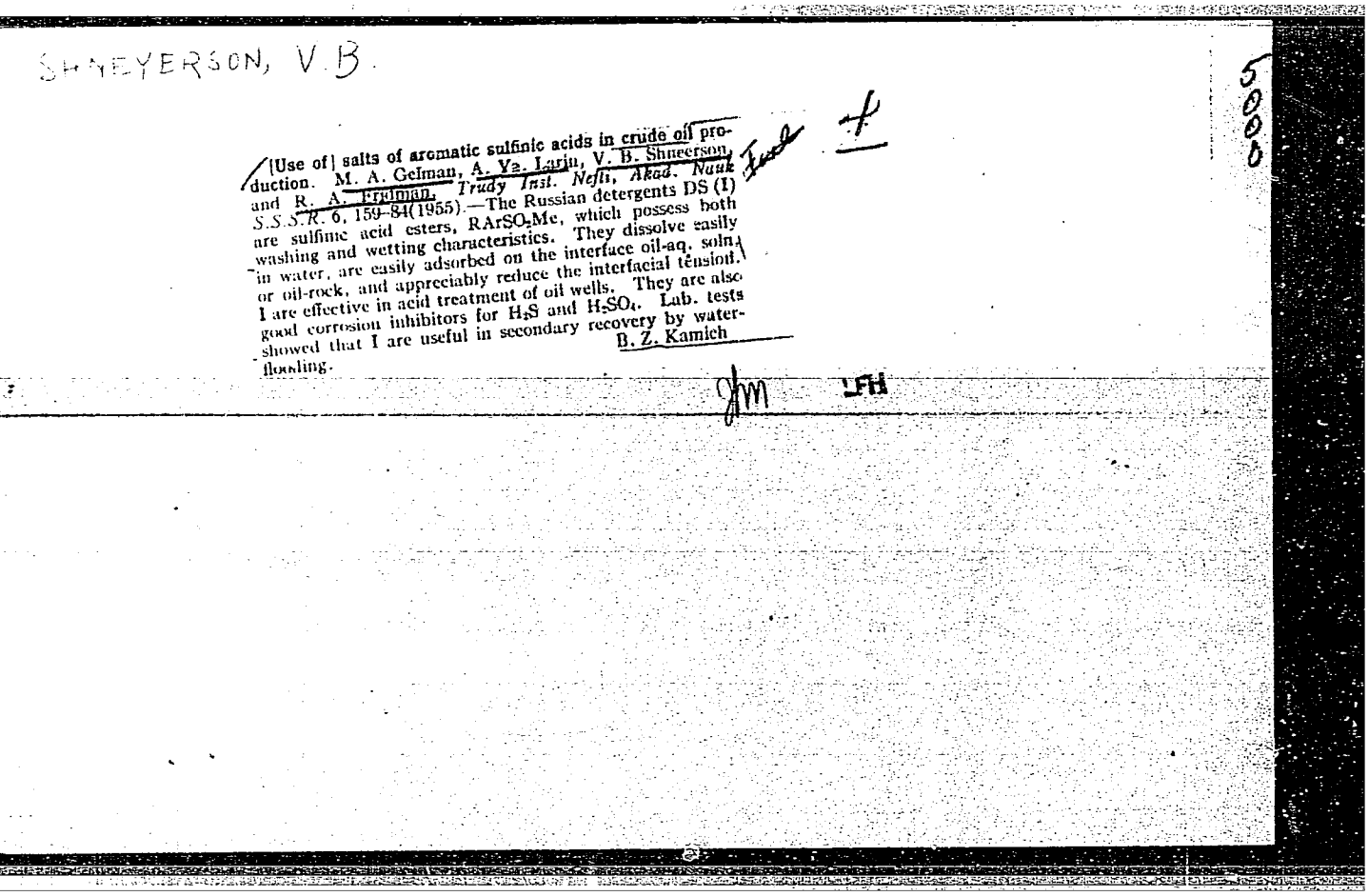
Title : The effect of pressure on the change in wetability of minerals within the oil bearing strata

Periodical : Izv. AN SSSR, Otd. Tekh. Nauk 6, 127-139, June 1955

Abstract : Determines the importance of knowing the wetability of oil bearing strata, under varied pressures, for maximum extraction of oil by water pressure. The water is pumped into the oil bearing strata and displaces and also washes out the oil from the minerals for possible recovery. It is concluded that the amount of natural pressure present within the strata has a definite effect on wetability and extraction of oil. Diagrams, graphs. Fifteen references, all USSR.

Institution : Institute of Petroleum, Academy of Sciences USSR

Submitted : November 13, 1954



SHNEYERSON, V.B.

5000

[Use of] salts of aromatic sulfinic acids in crude oil production. M. A. Gelman, A. Ya. Larin, V. B. Shneerson, and R. A. Fridman. *Trudy Inst. Nefti, Akad. Nauk S.S.S.R.* 6, 159–84(1955).—The Russian detergents DS (I) are sulfinic acid esters, $RArSO_2Me$, which possess both washing and wetting characteristics. They dissolve easily in water, are easily adsorbed on the interface oil-aq. soln. or oil-rock, and appreciably reduce the interfacial tension. I are effective in acid treatment of oil wells. They are also good corrosion inhibitors for H_2S and H_2SO_4. Lab. tests showed that I are useful in secondary recovery by water-flooding.

B. Z. Kamich

SHEYERSON, V. B.

"Variable Saturation of Oil Reservoir Rocks Carried Out at High Pressure With Liquids Which are on the Threshold With Various Gases"

"Sulfide Coating Produced in DC-Na Solution for Protection of Petroleum Equipment From Corrosion and Wear"

Transactions of the Petroleum Institute, Acad. Sci. USSR, v. 11, Oil Field Industry, Moscow, Izd-vo AN SSSR, 1958. 346pp.

SHNEYERSON, V.B.

Obtaining sulfide films in aqueous solutions of sodium salts of aromatic sulfonic acids for protecting oil-field equipment against corrosion and wear. Trudy Inst.nefti 11:294-311 '58. (MIRA 11:12)

(Oil fields--Equipment and supplies) (Sulfides)
(Corrosion and anticorrosives)

SOV/81-59-7-23748

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 300 (USSR)

AUTHOR: Shneyerson, V.B.

TITLE: The Generation of a Sulfide Coating in Aqueous Solutions of DS-Na With the Aim of Protecting Petroleum Equipment Against Corrosion and Wear

PERIODICAL: Tr. In-ta nefti. AS USSR, 1958, Vol 11, pp 294 - 311

ABSTRACT: Surface-active Na-salts of aromatic sulfoacids (DS-Na) protect steel of the st. 3, 40Kh and 50 grades well against corrosion in H_2S. A sulfide film is formed on the surface of the steels. In the case of a DS-Na content in the solution of 0.25% and higher the samples showed a small increase in weight. The sulfide layer obtained on st. 40Kh as a result of the treatment in solutions containing 0.25 and 0.5% DS-Na has a good wear-resistance. A test made on rollers showed that their wear in the case of sulfiding is approximately 300 times lower than the wear

Card 1/2

SOV/81-59-7-23748

The Generation of a Sulfide Coating in Aqueous Solutions of DS-Na With the Aim of Protecting Petroleum Equipment Against Corrosion and Wear

of analogous unsulfided rollers. The method of sulfiding can be useful for protecting pumping equipment on petroleum fields against corrosion and mechanical wear.

I. Levin

Card 2/2

RUDIK, V.B.; SHNEYGEL'BERG, A.Ya.

Submerged arc welding of ring joints. Mashinostroenie no.6: 105-106 N-D '62. (MIRA 16:2)
(Electric welding)

SHNEYVAS, P. KH.

Bukhgalterskiy uchet v promyshlennosti; uchebnoye posobiye dlya podgotovki bukhgalterov v kursovoy seti UPK TSU SSSR (Bookkeeping accounting in Industry, by) S. I. Seleznev, P. KH. Shneyvas i M. A. Merkulov. Moskva, Gosstatizdat, 1955.

350 P. diagrs., Tables.

SOKOLOV, Yu.N., prof. SHNIGER, N.U.

Some remarks on the X-ray diagnosis of peptic ulcer. Sov.med. 22 no.9:75-82 S'58 (MIRA 11:11)

1. Iz kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. Yu.N. Sokolov) TSentral'nogo instituta usovershenstvovaniya vrachey (dir. V.P. Lebedeva).
(PEPTIC ULCER, diag.
x-ray (Rus))

SHNIGER, N.V.

Study of the motor function of the stomach in patients with peptic ulcer by X-ray and gastrotonographic methods. Sov. med. 24 no. 7:67-74 Jl '60. (MIRA 13:8)

1. Iz vtoroy kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. Yu.N. Sokolov) Tsentral'nogo instituta usovershenstvovaniya vrachey (dir. M.D. Kovrigina) i 50-y gorodskoy klinicheskoy bol'nitsy (glavnyy vrach N.P. Brusova).
(PEPTIC ULCER) (STOMACH—EXAMINATION)

SHNIGER, N.U.

Bone disorders in lymphogranulomatosis. Vest. rent. i rad. 35 no. 2:77-79 Mr-Ap '60. (MIRA 14:2)

1. Iz 2-y kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. Yu.N. Sokolov) TSentral'nogo instituta usovershenstvovaniya vrachey (direktor M.D. Kovrigina).
(HODGKIN'S DISEASE) (BONES--DISEASES)

SHNIGER, N. U., Cand Med Sci -- "Functional Roentgeno-symptomatology of ulcer diseases." Mos, 1961. (State Sci Res Roentgenoradiol Inst Min of Health RSFSR) (KL, 8-61, 266)

SHNIGER, N. U.

Roentgenological observations on the dynamics of functional changes in peptic ulcer following conservative treatment. Terap. arkh. 33 no.5:57-63 My '61. (MIRA 14:12)

1. Iz 2-y kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. Yu. N. Sokolov) TSentral'nogo instituta usovershenstvovaniya vrachey i 50-y Gorodskoy klinicheskoy bol'nitsy.

(PEPTIC ULCER) (DIGESTIVE ORGANS—RADIOGRAPHY)

SHNIGER, N.U.; SHUL'TS, V.Ye.

X-ray morphological parallels in the study of some functional signs of poptic ulcer. Vest. rent. i rad. 37 no.2:16-23 Mr-Ap '62. (MIRA 15:4)

1. Iz 2-y kafedry rentgenologii i meditsinskoy radiologii (zav. - prof. Yu.N.Sokolov), kafedry patologicheskoy anatomii (zav. - prof. P.P.Yerofeyev [deceased]) TSentral'nogo instituta usovershenstvovaniya vrachey (rektor M.D.Kovrigina) i 50-y gorodskoy klinicheskoy bol'nitsy (glavnyy vrach N.P.Brusova).

(PEPTIC ULCER)

SHEKHTER, I.A., prof.; SHNIGER, N.U., kand. med. nauk

Deformity of the stomach of an ulcerative origin. Vestn. rent. i rad. 38 no.3:39-46 My-Je '63. (MIRA 17:7)

1. Iz rentgenodiagnosticheskogo otdela (zav. - prof. I.A. Shekhter) Gosudarstvennogo nauchno-issledovatel'skogo rentgeno-radiologicheskogo instituta (direktor - prof. I.G. Lagunova) Ministerstva zdravookhraneniya RSFSR i 2-y kafedry rentgenologii (zav. - prof. Yu.N. Sokolov) TSentral'nogo instituta usover-shenstvovaniya vrachey.

ROZENSHTRAUKH, L.S., prof., otv. red.; SVIRIDOV, N.K., kand. biol. nauk, red.; DEMIN, V.A., red.; KUZNETSOV, I.D., kand.med. nauk, red.; LUK'YANCHENKO, B.Ya., kand. med. nauk, red.; PERESLEGIN, I.A., iots., red.; RABUKHINA, N.A., kand. med. nauk, red.; SHNIGER, N.U., kand. med. nauk, red.

Aktual'nye voprosy klinicheskoi rentgenologii i radiologii; doklady. Current problems of clinical roentgenology and radiology. Moskva, Gos. nauchno-issl. rentgeno-radiologicheskii in-t, 1963. 205 p. (MIRA 17:5)

1.Mezhinstitutskaya konferentsiya molodykh uchenykh, posvyashchennaya 46-y godovshchine Velikoy Oktyabr'skoy Sotsialisticheskoy revolyutsii. 2. Rukovoditel' Nauchno-poliklinicheskogo otdela Moskovskogo Gosudarstvennogo rentgeno-radiologicheskogo instituta (for Kuznetsov). 3. Rukovoditel' rentgenodiagnosticheskogo otdela Moskovskogo Gosudarstvennogo rentgeno-radiologicheskogo instituta (for Rozenshtraukh). 4. Rukovoditel' Rentgenoterapevticheskogo otdela Moskovskogo Gosudarstvennogo rentgeno-radiologicheskogo instituta (for Pereslegin).

SHNIGER, N.U.

Roentgenological observations in radiotherapy in cancer of the rectum. Vop. onk. 11 no.1:16-21 '65. (MIRA 18:6)

1. Iz rentgenodiagnostichēskogo otdela (rukovoditeI' - prof. L.S. Rōzenshtraukh) Gosudārstvennogo nauchno-issIedovatel'skogo rentgeno-radiologicheskogo institūta Ministerstva zdravookhraneniya RSFSR (dir. - prof. I.G.Lagunova).

TAVONIUS, K.E.; SHNIGER, N.U.

Significance of roentgenokymography in cancer and some other diseases of the esophagus. Vest. rent. i rad. 40 no.4:18-24 Jl-Ag '65. (MIRA 18:9)

1. 2-ya kafedra rentgenologii (zav.- prof. Yu.N. Sokolov) Tsentral'nogo instituta usovershenstvovaniya vrachey i Gosudarstvennyy nauchno-issledovatel'skiy rentgeno-radiologicheskiy institut Ministerstva zdravookhraneniya RSFSR, Moskva.

L 34159-65 EEC(b)-2/EWA(c)/EWT(l)/EWT(m)/EWP(b)/T/EWP(t) IJP(c) JD

ACCESSION NR: AP5008137 S/0286/65/000/005/0013/0013

AUTHOR: Tuzovskiy, A. M.; Skakovskiy, I. I.; Pesotskiy, G. S.; Aleshin, A. M.; Shniger, V. E.; Dmitriyev, N. V.

TITLE: Crucible for growing crystals from a melt. Class 12, No. 168639

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 13

TOPIC TAGS: crystal growing, crucible, semiconductor, single crystal

ABSTRACT: This Author Certificate introduces a crucible in which the oxide layer is separated from the melt by a centrally located chamber (see Fig. 1 of the Enclosure). [VS]

ASSOCIATION: none

SUBMITTED: 20Jan64 ENCL: 01 SUB CODE: IE, SS

NO REF SOV: 000 OTHER: 000 ATD PRESS: 3212

Card 1/2

SHNIP, O.A.; DANCHEV, V.I.; SHILOVSKIY, P.P.

Cretaceous structural features of southeastern Fergana and their paleogeographic importance. Trudy MINKHiGP no.25:328-341 '59. (MIRA 15:5)

(Fergana--Petrology)

SHNIP, O.A. [Snip, O.A.]

Paleozoic rocks of the Epi-Hercynian basement in the Dzhar-Kak, Karaul-Bazar, and Sary-Tash gas and oil fields (Kagan fields, western Uzbekistan). Trudy MINKHiGP no.36:127-147 '62. (MIRA 15:6)

(Bukhara Province--Petrology)

KNYAZEV, V.S.; CHARYGIN, A.M.; SHNIP, O.A.

Igneous rocks in the closed part of the fold basement in western Uzbekistan. Trudy MINKHiGP no.38:69-90 '62. (MIRA 15:9)
(Uzbekistan—Rock, Igneous)

KNYAZEV, V.S.; SHNIP, O.A.

Petrographic composition of basement rocks in Turkmenia. Trudy MINKHiGP no.38:91-109 '62. (MIRA 15:9)
(Turkmenistan--Petrology)

KNYAZEV, V.S.; KRYLOV, A.Ya.; SILIN, Yu.I.; SHNIP, O.A.

Recent data on the age of basement rocks of western Central Asia. Dokl. AN SSSR 148 no.3:665-667 Ja '63. (MIRA 16:2)

1. Predstavleno akademikom D.I. Shcherbakovym.
(Soviet Central Asia--Rocks, Igneous)

[redacted]

[redacted]

[redacted]

[redacted]

SHNIPAS, P. A., Cand. Medic. Sci. (diss) "Early Changes of Blood Circulation and Gas Exchange and their Dynamics in Patients with Hypertonia," Vil'nyus, 1961, 48 pp. (Vil'nyus State Univ.) 250 copies (KL Supp 12-61, 290).

RUMYANTSEV, G.N., redaktor; BORISOV, N.I., redaktor; BUYANTUYEV, B.B., redaktor; KROTOV, V.A., redaktor; RAZUMOV, I.M., redaktor; KHADALOV, P.I., redaktor; SHNIPER, R.I., redaktor; AKHANOV, Ts.B., tekhnicheskiy redaktor.

[Studies on the production forces of the Buryat-Mongolian A.S.S.R.] Materialy po izucheniiu proizvoditel'nykh sil Buriat Mongol'skoi ASSR. Ulan-Ude, Buriat-Mongol'skoe kn-vo. no.1. 1954. 425 p. (MLRA 9:5)
(Buryat-Mongolia--Economic geography)

POPOV, S.D., otv.red.; BORISOV, N.I., red.; BUYANTUYEV, B.R., red.; GALAKTIONOV, I.I., red.; KROTOV, V.A., red.; OZNOBIN, N.M., red.; PAVLOVSKIY, Ye.V., red.; TARASOV, G.L., red.; SHNIPER, R.I., red.; AKHANOV, TS.B., tekhn.red.

[Studies on the production forces of the Buryat-Mongolian A.S.S.R.] Materialy po izucheniiu proizvoditel'nykh sil Buriat-Mongol'skoi ASSR. No.2. Ulan-Ude, Buriat-Mongol'skoe knizhnoe izd-vo. 1955 507 p. (MIRA 12:4)

1. Akademiya nauk SSSR. Vostochno-Sibirskiy filial. 2. Sovet po izucheniyu proizvoditel'nykh sil AN SSSR (for Popov, Galaktionov, Tarasov). 3. Zamestitel' predsedatelya Soveta Ministrov Buryat-Mongol'skoy ASSR (for Borisov). 4. Vostochno-Sibirskiy filial AN SSSR (for Buyantuyev). 5. Institut ekonomiki AN SSSR (for Oznobin). 6. Gosplan Buryat-Mongol'skoy ASSR (for Shniper).
(Buryat-Mongolia--Geography, Economic)

BANDMAN, M.K.; SHNIPER, R.I.

External industrial-economic relations of the Buryat-Mongolian A.S.S.R. and immediate prospects for their development. Izv. vost. fil. AN SSSR no.12:3-14 '57. (MIRA 11:1)

1. Zapadno-Sibirskiy filial AN SSSR i Gosplan Soveta Ministrov Buryat-Mongol'skoy ASSR.
(Buryat-Mongolia--Economic conditions)

SHNIPER, Ruvin Isakovich

[Economic relations of the Buryat A.S.S.R. and ways of developing them] Ekonomicheskie sviazi Buriatskoi ASSR i puti ikh razvitiia. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1958. 108 p.
(MIRA 13:3)

(Buryat-Mongolia--Economic conditions)

KOZHOV, M.N., prof., doktor biolog.nauk; MISHARIN, K.I., dotsent, kand. biolog.nauk. Prinimali uchastiye: TOMILOV, A.A., kand.biolog.nauk; POPOV, P.F., kand.biolog.nauk; YEGOROV, A.G., kand.biolog.nauk; TUGARINA, P.Ya., kand.biolog.nauk; TYUMENTSEV, N.V., nauchnyy sotrudnik; ASKHAYEV, M.G., nauchnyy sotrudnik; NIKOLAYEVA, Ye.P., nauchnyy sotrudnik; KARTUSHIN, A.I., nauchnyy sotrudnik; STERLYAGOVA, M.A., nauchnyy sotrudnik; KORYAKOV, Ye.A.; SPELIT, K.K., inzh.; ARTYUNIN, I.M., inzh.; OKUNEV, P.M.; SHNIPER, R.I., rabotnik. SHAFIROVA, A.S., red.; SOROKINA, T.I., tekhn.red.

[Fishes and commercial fishing in Lake Baikal] Ryby i rybnoe khoziaistvo v basseine ozera Baikal. Irkutskoe knizhnoe izd-vo, 1958. 745 p. (MIRA 12:4)

1. Sotrudniki Irkutskogo gosuniversiteta (for Misharin, Tomilov, Popov, Yegorov, Tugarina). 2. Sotrudnik Baykal'skoy limnologicheskoy stantsii Akademii nauk SSSR (for Koryakov). 3. Baykalrybtrest (for Spelit, Artyunin). 4. Gosplan Buryat-Mongol'skoy ASSR (for Shniper).
(Baikal, Lake--Fisheries)

SHNIPER, R.I.

Economic prerequisites for the distribution of light industry in the Buryat-Mongolian Autonomous Soviet Socialist Republic. Kraeved. sbor. no.2:3-33 '58. (MIRA 13:2)
(Buryat-Mongolia--Manufactures)

SHNIPER, R.I., kand.ekonom.nauk; ASTAKHOV, I.A., tekhn.red.

[Comprehensive utilization of timber resources and development of economic relations in the Buryat A.S.S.R.] Kompleksnoe ispol'zovanie lesosyr'evykh resursov i razvitie ekonomicheskikh sviazei Buriatskoi ASSR. Ulan-Ude, Buriatskoe knizhnoe izd-vo, 1959. 49 p. (MIRA 14:2)

(Buryat-Mongolia--Forests and forestry)
(Buryat-Mongolia--Economic conditions)

SHNIPER, R.I.

Development of economic ties between Buryat industry and agriculture. Kraeved.sbor. no.4:3-41 '59.
(MIRA 13:7)

(Buryat-Mongolia--Economic conditions)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R001549820007-5"

SHNIPER, R. (Novosibirsk)

Production of consumers' goods and problems of trade in Siberia. Vop. ekon. no.11:156-158 N '60. (MIRA 13:11)
(Siberia--Manufactures) (Siberia--Retail trade)

SHNIPKIN, A. [Shnypkin, A.]

Waterproof mortars for protecting residential and industrial buildings. Bud.mat.i konstr. 2 no.1:52-55 F '60. (MIRA 13:6)

1. Glavnyy inzhener tresta "Chervonoarmiys'kzhitlobud."
(Mortar) (Waterproofing)

TYAZHELOV, B.P., SHNIPKO, Ye.V., [deceased], PANASENKO, A.D., kand.tekhn.nauk. red.; GORDEYEV, P.A., red.izd-va., STEPANOVA, E.S., tekhn.red.

[Earthwork under winter conditions] Zemlianye raboty v zimnikh usloviiakh. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1958. 177 p. (MIRA 11:9)
(Earthwork--Cold weather conditions)

MIKHAYLOV, A.V. (Chitinskaya obl.); BEVZ, G.P. (Kiyev); GISIN, B.V., (Alma-Ata); SANDLER, TS.M (Sumy); AVERBUKH, M.P. (Leninabad); SHNIPOR, B.N. (Vinnitsa); ZAKHAROV, V.L. (Minsk); YASINOVYY, E.A. (Kuybyshev); VOSKRESENSKIY, S.N. (Kuybyshev)

Problems. Mat.v shkole no.4:94-95 Jl-Ag '59.
(MIRA 12:11)

(Geometry--Problems, exercises, etc.)

CHEPRAKOV, N.N.; SHNIREL'MAN, A.I. (Moskva)

Paragonimosis of the lungs. Klin.med. 34 no.12:69-71 D '56.
(MIRA 10:2)
(LUNG DISEASES
Paragonymus infect., clin.aspects & ther.)
(PARAGONIMUS, infect.
lungs, clin. aspects & ther.)

SHNIREL'MAN, A.I. (Moskva)

Diagnosis of the transformation of a peptic ulcer into cancer.
Khirurgiia 33 no.4:139-141 Ap '57. (MLRA 10:7)
(PEPTIC ULCER, compl.
transform. into cancer, diag.)
(STOMACH NEOPLASMS, diag.
transform. from peptic ulcer)

SHNIREL'MAN, A.I.

Gastric cyst; abstract A.I. Shnirel'man. Khirurgiia 34 no.12:96 D '58.
(STOMACH--TUMORS) (CYSTS) (MIRA 12:1)

SHNIREL'MAN, A.I.; CHEPRAKOV, N.N. (Moskva)

A case of multiple trematode infection. Klin.med. 36 no.3:119-121 Mr '58. (MIRA 11:4)

(TREMATODE INFECTIONS, case reports
combined clonorchiasis & paragonimiasis (Rus))

***5187. Cancer of the stomach combined with duodenal ulcer (Russian text)** SHNIRELMAN A. I. Milit. Hosp., Moscow *Vopr. Onkol.* 1959, 5/9 (371–373)

Among 82 cases of gastric cancer 4 patients with associated duodenal ulcer were found. Two cases are described in detail. (1) A man of 37 who had been suffering intermittently from duodenal ulcer for the last 12 yr. On roentgenological examination cancer of the stomach was detected. Total gastrectomy was successful (follow-up of 9 yr.); no X-rays or photomicrographs are presented. (2) A man of 54 suffered from a duodenal ulcer and developed gastric cancer. At laparotomy hepatic metastases were found. Death followed in 6 months. Autopsy confirmed the diagnosis.

SHNIREL'MAN, A.I.

Cysts of the stomach. Vest.rent.i rad. 34 no.5:72-72 S-O '59.
(MIRA 13:3)

(STOMACH diseases)
(CYSTS radiography)

SHNIREL'MAN, A.I.

Peculiarities of x-ray examination in ulcer of the upper portion of the stomach. Vest.rent.i rad. 35 no.1:59-60 Ja-F '60. (MIRA 13:6)

(PEPTIC ULCER radiogr.)

VLASOV, K.F.; SHNIREL'MAN, A.I.

Problem of calculous pancreatitis. Klin. med. 38 no. 4:127-130 Ap '60. (MIRA 14:1)

(PANCREAS--DISEASES) (CALCULI)

SHNIREL'MAN, A.I.

Transitory infiltrations in the lungs. Probl.tub. 38 no.8:63-69 '60. (MIRA 14:1)

(LUNGS--DISEASES)

SHNIREL'MAN, A. I.

Cand Med Sci - (diss) "Volatile infiltrants in the lungs." Moscow, 1961. 14 pp; (State Scientific Research Roentgeno-Radiological Inst of the Ministry of Public Health RSFSR); number of copies not given; price not given; (KL, 6-61 sup, 242)

SHNIREL'MAN, A.I. (Moskva, V-180, 1-y Khvostov per., d. 4/5, kv.7)

Role of radiographic examination in the diagnosis of transient pulmonary infiltrations. Vast.rent.i rad. 36 no.3:43-50 My-Je '61. (MIRA 14:7)

(LUNGS--RADIOGRAPHY)

MARMORSHTEYN, S.Ya.; SHNIREL'MAN, A.I.

Cancer of the gastric stump after a resection because of peptic ulcer. Vop.onk. 7 no.5:30-34 '61. (MIRA 15:1)

1. Iz rentgenodiagnosticheskogo otdeleniya (zav. - prof. Ye.E. Abarbanel') Gosudarstvennogo onkologicheskogo instituta P.A. Gertsena (dir. - prof. A.N. Novikov, nauchnyy rukovoditel' - deystvitel'nyy chlen AMN SSSR zasluzhennyy deyatel' nauki prof. A.I. Savitskiy).
(STOMACH--SURGERY) (STOMACH--CANCER)

SHNIDEL'MAN, A.I.

Methodology of hysterography in cancer of the uterus. Vest. rent. i rad. 39 no.1:72-73 Ja-F '64.

(MIRA 18:2)

1. Rentgenodiagnosticheskoye otdeleniye (zav. - doktor med. nauk Ye.A. Likhtenshteyn) Gosudarstvennogo onkologicheskogo instituta imeni Gertsena, Moskva.

SHNIREL'MAN, A.I., kand. med. nauk; OSTROVTSEV, L.D.

Errors in the tactics of examination and diagnosis in cancer of the large intestine. Sov. med. 28 no.10:124-127 O '65. (MIRA 18:11)

1. Rentgenodiagnosticheskoye (zav.- doktor med. nauk Ye.A. Likhtenshteyn) i 3-ye khirurgicheskoye (zav.- doktor med. nauk A.P. Bazhenova) otdeleniya Gosudarstvennogo onkologicheskogo instituta imeni Gertsena (dir.- prof. A.N. Novikov), Moskva.

SHNIREL'MAN, L. G.

Über eine neue kombinatorische Invariante. Monatshefte, 37 (1930), 131-134.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

SHNIREL'MAN, L. G.

Topologicheskiye metody v analize Sb., (Matematika v SSSR za 15 let) (1932, 143-156.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

SHNIREL'MAN, L. G.

O ravnomernykh pribliz heniyakh. IAN, ser matem., 2 (1938), 53-59.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad,1948

SHNIREL'MAN, L. G.

O nekotorykh geometricheskikh svoystvakh zamknutykh krivykh. Uspekhi matem. nauk, 10 (1944), 34-44.

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

SHNIREL'MAN, L.

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Lyusternik, L., and Shnirel'man, L. Topological methods in variational problems and their application to the differential geometry of surfaces. Uspekhi Matem. Nauk (N.S.) 2, no. 1(17), 166–217 (1947). (Russian)

This article covers, with one exception which is discussed later, the same material as an earlier monograph [Méthodes topologiques dans les problèmes variationnels, Actual. Sci. Ind., no. 88, Hermann, Paris, 1934]. The difference between the two articles is that the present work fills in gaps and amplifies proofs of the former work, which according to the authors, proved to be too condensed. The following are the headings of the sections. Part I, the n-dimensional case: (1) critical points, (2) homotopy classes, (3) the principle of stationary points, (4) the category of a closed set with respect to a compact manifold, (5) an estimate of the number of solutions of a variational problem, (6) applications and examples, (7) the category of projective space, (8) applications of homology theory to estimating the category, (9) divisors of a manifold, (10) pseudo-category of pseudo-projective space. Part II, variational problems: (1) deformations of families of curves, (2) the category of families of curves, (3) families of neighborhoods on a sphere, (4) category of families of neighborhoods, (5) proof of some lemmas, (6) theorems on closed geodesics, (7) the operation of contracting curves, (8) the straightening deformation [see below], (9) the preceding deformation for systems of curves, (10) existence proof for an almost geodesic curve in an almost minimal system, (11) application of the theory of category.

The main problem of part II is the proof that at least three different closed geodesics exist on a surface of genus 0 in E^3. If the lengths c_i of the three geodesics are different, then it is still conceivable that, for instance, $c_3=2c_1$ and the geodesic corresponding to c_3 is twice the geodesic corresponding to c_1. The earlier book did not exclude this possibility. The present succeeds in doing so by considering only families of curves without multiple points. This necessitates a proof that the deformations of families of curves can be performed by staying within the realm of simple curves. This proves very complicated and is the content of sections (8) and (9) of part II. There is no reference to work later than the first article either on category or on the calculus of variations in the large, except for one paper of Borsuk in 1936 and one by El'sgol'c in 1939. *H. Busemann.*

Source: Mathematical Reviews, Vol 10, No. 9

USSR/Mathematics - Nonlinear Operators Jul/Aug 53

"Application of Variational Methods in the Problem on Bifurcation Points," M. A. Krasnosel'skiy, Voronezh

Mat Sbor, Vol 33 (75), No 1, pp 199-214

Gives the following definition: The number λ_0 is called a bifurcation point of a nonlinear operator A acting in a certain Banach space if for any positive epsilon and delta one can find an eigenvalue lambda and an eignevector phi of A (i.e. $A\varphi=\lambda\varphi$) such that $|\lambda-\lambda_0|<\varepsilon, \|\varphi\|_B$. Operators that act in a Hilbert space H and are the gradients of certain functionals are defined as potential operators, following the ideas of L. A. Lyusternik and L. G. Shnirel'man. Aim here is to demonstrate the basic theorem that specifies when each eigenvaue of a nonlinear operator G. Acknowledges assistance of A. I. Povolotskiy in the formation of this work. Presented 13 Oct. 52.

27 IT89

SHNIREL'MAN, P. G. Cand. Physicomath Sci.

Dissertation: "Distribution of V-Stars in the Galaxy."

26/10/50
Moscow State U. imeni.
M. V. Lomonosov.

SO Vechernyaya Moskva
Sum 71

SHNIREL'MAN, P. G.

USSR/Astronomy - Distribution of B-Stars Mar/Apr 52

"Distribution of B-Stars in the Neighborhood of the Sun," P.G. Shnirel'man, Astr Inst imeni Shternberg

"Astron Zhur" Vol XXIX, No 2, pp 179-197

Expresses his gratitude to Prof P.P. Parenago for proposing this theme which has served as a candidate dissertation.. Investigates the distribution of stars closest to the Sun which are of the spectral subclasses B0-B5 to $8^{m}.25$ of visible photographic stellar magnitude, on the basis of present-day data on absorption of light in space and on

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function of brightness. First studies structure of the Local System, and then the distribution along the z-coordinate all B-stars in neighborhood of the Sun within a sphere of 500 parsec radius. Finally evaluates total number of B-stars in our Galaxy. Submitted 1 Jul 51.

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L 65092-65 EWT(m)/EPF(c)/EWA(d)/EWP(t)/EWP(z)/EWP(b) MJW/GD/WB

ACCESSION NR: AR5019277 UR/0277/65/000/007/0018/0018

669.245

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Gidroprivod. Otdel'nyy vypusk, Abs. 7.48.122

AUTHOR: Shnirel'man, V. A.

TITLE: Analysis of casting, mechanical, and anticorrosion properties of Hastelloy D alloy

CITED SOURCE: Sb. nauchno-issled. rabot aspirantov. Kishinevsk. s.-kh. in-t. Kishinev, 1964, 143-147

TOPIC TAGS: alloy property analysis, alloy composition, alloy corrosion, optimal silicon content, nickel alloy Hastelloy D

TRANSLATION: Hastelloy D alloy contains (in %): 0.1C, 11 — 12.5 Si, 0.8 Mn, 4.5 — 5.0 Cu, balance Ni. Reductions in Si to 10% and in Cu to 3 — 4% are allowable for purposes of lowering the brittleness and improving the machinability. The author studied the effects of alloying elements on the casting, mechanical, and anticorrosion properties of the alloy. Corrosion tests in various concentration solutions of H_2SO_4 at 70 — 90C indicate high resistance when Si is above 11%, but poorer mechanical qualities. The latter were

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ACCESSION NR: AR5019277

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improved by modifying the casting technology and by one-shot addition of Ni into the melt prior to casting. Data obtained by the authors indicate that the content of Si should be maintained at above 11%. See also: Mosyak, A. D., and Shnirel'man, V. A. "Dokl. Nauchn. konferentsii professorov i predpodavateley. Kishinevsk. s.-kh. in-t., 1963", Kishinev, "Kartya Moldovenyaske", 1964, 246-250.

SUB CODE: MM ENCL: 00

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L 57518-65 EWT(m)/EWP(w)/EPF(c)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b) Pad IJP(c)
JD/HW/WB

ACCESSION NR: AR5013022 UR/0137/65/000/004/I071/I071
669.245'782'74'3.018.45

SOURCE: Ref. zh. Metallurgiya, Abs. 4I445

AUTHOR: Mosyak, A. D.; Shnirel'man, V. A.

TITLE: Investigation of the cast, mechanical and anticorrosion properties of Hastelloy D

CITED SOURCE: Dokl. Nauchn. konferentsii professorov i prepodavat. Kishinevsk. s.-kh. in-ta, 1963. Kishinev, Kartya Moldovenyaske, 1964, 246-250

TOPIC TAGS: metal corrosion, metal mechanical property, casting, nickel alloy/ Hastelloy D/nickel alloy

TRANSLATION: The alloy has the following composition (in %): 0.1 C, 11-12.5 Si, 0.8 Mn, 4.5-5 Cu, and the remainder Ni and impurities. The Si content may be reduced to 10% and the Cu content to 3-4% to decrease brittleness and improve machineability. Corrosion tests in solutions of H_2SO_4 of various concentration at 70-90°C showed the alloy has high stability when the Si content is less than 11%, but has

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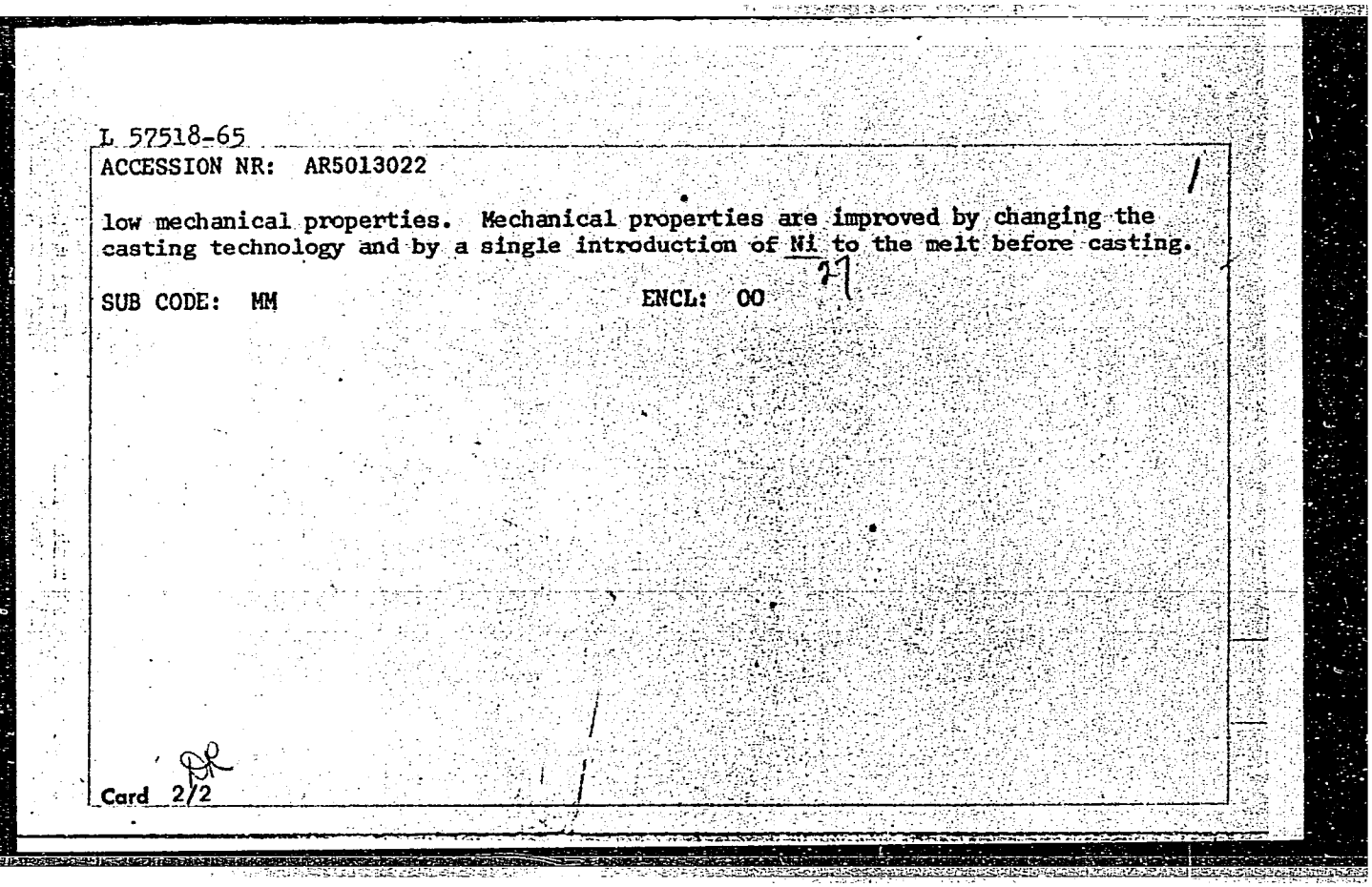

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ACCESSION NR: AR5013022

low mechanical properties. Mechanical properties are improved by changing the casting technology and by a single introduction of Ni to the melt before casting.

SUB CODE: MM ENCL: 00

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3430. SHNIRENKOVA O. V. Centr. Mil. Hosp. Burdenko, Moscow. * Melanoblastoma of the adrenal with metastases (Russian text) ARKH. PATOL. (Moscow) 1956, 13/1 (111-113)

Autopsy of a 28-year-old man who had died from acute generalized peritonitis disclosed and encapsulated melanoblastoma, 1 cm. in size, in the left adrenal, neoplastic invasion of the periadrenal lymphatics, and metastatic tumour deposits in the liver, pancreas, colon, and in the retroperitoneal and mesenteric lymph nodes. The author believes that the melanoblastoma originated in the adrenal because the histological changes indicated that the tumour had been present in the adrenal longer than in all other locations. Melanoblastomas of the adrenal are probably derived from neuro-ectodermal elements containing melanin. No mention is made that the eyes had been examined at autopsy. Wilson - Dearborn, Mich. (V, 16)

SHNIRLIN, Yu.L.

Certain methods for the calculation of the turnover of collective farm trade. Sov. torg. no.2:31-33 F '58. (MIRA 11:1)
(Farm produce--Marketing)

NAZAROV, R.S.; SINYUTIN, V.M.; SHNIRLIN, Yu.L.; USTINOV, M.T., red.; MAMONTOVA, N.N., tekhn.red.

[Consumption in the U.S.S.R. and method for its calculation] Potreblenie v SSSR i metodika ego ischisleniia. Moskva, Gos. izd-vo torg.lit-ry, 1959. 82 p. (MIRA 13:3)
(Consumption (Economics))

SAPEL'NIKOV, Ya.; SHMIRLIN, Yu.; LEVIN, A.

Irrealizable suggestions. Sov. torg. 33 no.7:25-29 Jl '59.
(MIRA 12:9)
(Supply and demand)

SHNIRMAN, A.L.

Some psychological problems in educational work in boarding schools. Vop. psikhol. 2 no.6:3-15 N-D '56. (MLRA 10:2)

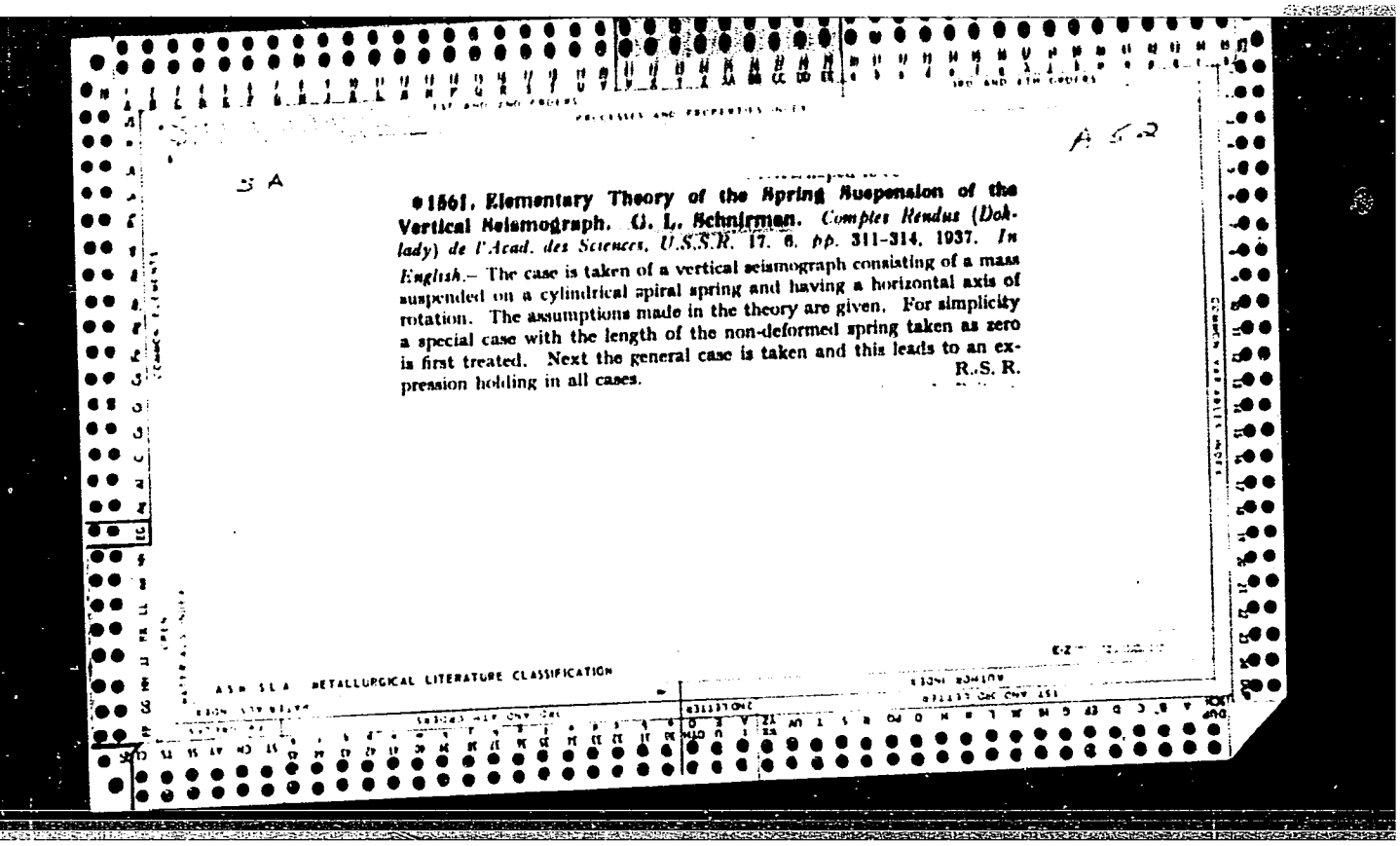
1. Leningradskiy gosudarstvennyy pedagogicheskiy institut.
(Boarding schools) (Educational psychology)

SHNIRMAN, A.L.; YARMOLENKO, A.V.

Vladimir Mikhailovich Bekhterev; on the 100th anniversary of his birth. Vop. psikhol. 3 no.2:43-52 Mr-Ap '57. (MLRA 10:6)
(Bekhterev, Vladimir Mikhailovich, 1857-1927)

SHMIRLIN, Yuriy Leont'yevich; ROTOVA, R.S., red.; GOROKHOVA, S.S., tekhn. red.

[Scientifically founded consumption norms] Nauchno-obosnovannye normy potrebleniia. Moskva, Gos. izd-vo "Vysshaia shkola," 1961. 76 p. (MIRA 15:2)
(Consumption (Economics))



*1561. **Elementary Theory of the Spring Suspension of the Vertical Seismograph.** G. L. Schnirman. *Comptes Rendus (Doklady) de l'Acad. des Sciences, U.S.S.R.* 17. 6. pp. 311-314. 1937. *In English.*— The case is taken of a vertical seismograph consisting of a mass suspended on a cylindrical spiral spring and having a horizontal axis of rotation. The assumptions made in the theory are given. For simplicity a special case with the length of the non-deformed spring taken as zero is first treated. Next the general case is taken and this leads to an expression holding in all cases. R.S.R.

SHNIRMAN, G. I.

Elektricheskiye metody integrirovaniya i differentsirovaniya Trudy seysmol. in-ta, 105 (1940).

SO: Mathematics in the USSR, 1917-1947
edited by Kurosh, A.G.,
Markushevich, A.I.,
Rashevskiy, P.K.
Moscow-Leningrad, 1948

SHNIRMAN, G., doktor tekhnicheskikh nauk.

High-speed photography. Sov. foto 17 no.9:40-46 S '57. (MLRA 10:9)
(Photography, Instantaneous)

SOV/77-4-1-2/22

AUTHORS: Dubovik, A.S., Kevlishvili, P.V., and Shnirman, G.L.

TITLE: ~~A~~ Time Magnifier With Multiple Reflection (Lupa vremeni s mnogokratnym otrazheniyem)

PERIODICAL: Zhurnal nauchnoy i prikladnoy fotografii i kinematografii, 1959, Vol 4, Nr 1, pp 12-19 (USSR)

ABSTRACT: The authors have worked out a slow motion camera of LV-1 type (Figures 6 and 7) with a tenfold reflection from 2 rotating mirrors (Figures 1 and 2), permitting the taking of 2 to 33 1/3 million frames a second. The optical system of the camera was calculated by Engineer A.B. Granigg. The electrical part was worked with the participation of Engineers I.A. Korolev and A.M. Tolmachev. The projection of the mechanical part of the LV-1 camera was effected by Senior Engineer-Designer V.F. Voronin. This apparatus, developed in the Institute of Chemical Physics of AS USSR, is intended for the study of

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such phenomena as detonations, spark discharges, etc., and was displayed at the Brussels World Fair of 1958. The mirror system of the camera is put into motion by an electric motor through a step-up gear and reaches 60,000 rpm. The camera is controlled fully automatically by special electronic devices (Figure 5) that control the frequency of photographing and shutter operation, emit a high-voltage pulse to initiate in a given moment the phenomenon to be studied, and stop the photographic operation upon termination. The article describes in detail the design and performance (Table 1) of the camera. There are 2 photos, 4 diagrams, 1 block diagram, and 1 table.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (The Institute of Chemical Physics of AS USSR)

SUBMITTED: July 26, 1958

SHNIRMAN, G.L.

Some problems in the development of slow motion apparatus and photochronographs with mirror image scanning. Usp.nauch.fot. 6:93-101 '59. (MIRA 13:6)
(Photography, High-speed) (Photochronographs)

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AUTHORS: Shnirman, G.L. and Dubovik, A.S.

TITLE: Modern High-speed Photography (Review)

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 5, pp. 3 - 15

TEXT: After listing the typical uses of high-speed photography, including some major military applications, the international exchange of experience through the medium of international conferences is mentioned and two All-Union conferences in 1957 and 1960 are referred to. Electronic methods for carrying out auxiliary operations and for the instantaneous generation of an intermediate image in the fastest photographic devices are characteristic of modern trends. Electronic control ensures the sequence of operations to an accuracy of fractions of a microsecond. Electronic optical transducers have opened new ways of greatly raising the speed of photography just when mechanical means of optical control approach the limit of their potentialities. The well-known system is explained in principle wherein an image is made to move together with a continuously moving film. For example,

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the image can be moved by means of a rotating prism. Although not new, the commercial production of this type of apparatus suitable for speeds of the order of 10 000 frames/sec is increasing. The Russian version of such a camera is designated СКС-1 (SKS-1). American and Swiss makes are mentioned. Speeds of 10 000 frames/sec in 8 mm film are achieved. Special arrangements are mentioned such as simultaneous oscillographic recording, attachments for microphotography and special cameras to withstand up to 100 g. The limiting speed of a film due to centrifugal stresses is 100-120 m/sec. Greater speeds are reached by rolling off inside a drum permitting up to 400 m/sec. Compared with a total length of film in coiling arrangements which reaches up to 300 m, films in or on drums rarely exceed 1.5 m length, thereby severely limiting the duration of the photographed event. Usually, the important part of the event can nevertheless be captured. When the brightness of the photographed phenomenon is of the same order as that of other objects in the field of view or else the total duration of the luminous

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phenomenon exceeds the duration of one turn of the drum, high-speed shutters synchronised with the phenomenon are necessary. The German Fruengel "Strobodrum" uses a powerful pulse projector with 16-50 000 discharges per second each of 0.5 millisecond duration having a candle power of 2.5×10^8 and ensuring clear photography on standard 35 mm film moving at 100 m/sec without any devices for rendering the image stationary. The shift of the image is lower than the resolution of the optical system. Up to 5 000 frames/sec can be taken or, with correspondingly reduced frame height, up to 50 000 frames/sec.

The Cranz-Schardin principle of high-speed photography uses a number of parallel focusing systems, each creating an image in its own region of the sensitised material. German apparatus of this type has a thyratron controlled spark gap for each focusing channel with a switching accuracy of 0.1 μs. The Russian ФП-36 (FP-36) camera of the Gosudarstvennyy opticheskiy institut (State Optical Institute) uses parallel

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focusing systems for self-illuminating phenomena. A disc-type slot shutter controls the sequence of light admission to the separate focusing systems, producing a sequence of images on a broad (320 mm) moving film. During exposure of all frames, the film moves by one frame height and thus blurring is negligible. 25 000 frames/sec are obtained at a relatively low film winding speed. Up to 9 seconds total exposure time are available. The multi-row arrangement of frames accelerates the process but is not suitable for objects in close proximity because of substantial parallax. This drawback is absent in arrangements with optical commutation by a rotating mirror which throws the image onto a row of intermediate objective lenses arranged alongside stationary sensitised material. To eliminate the "vignette" effect, a collector lens is so arranged between the entry objective lens and the rotating mirror that the entry objective lens and the intermediate objective lenses are placed at the conjugate focal points of the collector lens. This arrangement assures true step-by-step commutation. The ВСНР (SFR) camera permits 625 000 frames/sec of 10 x 10 mm and

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2.5 million frames/sec of 5 x 5 mm with total numbers of 60 and 240 frames, respectively. A thyratron discharge device emits a high voltage impulse which triggers the phenomenon to be photographed at a certain position of the rotating mirror. The flat two-sided mirror rotates at 75 000 rpm, driven by a commutator AC motor through a speeding-up gear. Further increases in speed by lengthening the optical lever are impractical without loss of resolution. Increasing the mirror speed is adopted by American instruments with the help of air, or even helium, turbines. In a recent Brixner camera the helium turbine rotates a mirror in vacuo at 1.26 million rpm and achieves 15 million frames/sec. Among instruments of this kind without exact synchronisation between the beginning of the photographed phenomenon and the angular position of the rotating mirror, the ФП-22 (FP-22) camera of the State Optical Institute has a maximum rate of 100 000 frames/sec and a total duration of 0.08 sec. The mirror set at 45° to the optical axis and the entry objective lens perform axial motion, apart from rotation about the optical axis and thereby cover with 3.6 x 4.8 mm frames

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Modern High-speed Photography (Review)

a 16 mm film disposed around the optical axis in a large diameter spiral. A dove prism ahead of the entry objective lens rotates at half the mirror speed against the direction of rotation of the mirror and so compensates the turning of the images about the centres of the frames. The film can be projected on a screen reproducing the phenomenon in slow motion at a speed reduced 6 250 times. The rotating mirror is set at 45° to the axis of rotation. The speed of photography is, other things being equal, half that of instruments in which the axis of rotation of the mirror is perpendicular to the optical axis. Devices with optical commutation of the "waiting" type have a large variety of optical and mechanical arrangements. The common feature is the existence of two, three or four simultaneously operating photographic devices with optical commutation so laid out that before completion of the photographing process in the first channel, photographing begins in the second channel. The "dead" angle of the mirror rotation within which, in the given channel, no images are produced on the sensitised material is overlapped by the operation of

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neighbouring channels. In most cases, to avoid parallax, a common entry objective lens is used and the light is divided by semitransparent mirrors and directed into each channel. The light intensity is thereby reduced. The Beckman and Wheatley camera is mentioned, yielding 1.4 million frames/sec of 17 x 25 mm and a total number of 80 frames. Combination of optical commutation with the Kerr shutter ensures an exposure time of 50 mμs to avoid blurring of fast moving phenomena. In a Russian instrument devised at the Physical Chemistry Institute of the AS USSR the reduction in the exposure time is achieved by increasing the effective aperture of the recording system. The objective lens produces an image of the object near a four-sided prism, Simultaneously the same objective lens produces the image of an aperture diaphragm by reflection from the prism along an axis at right-angles to the axis of the objective lens. The diaphragm image is placed in front of a reversing system of lenses which transfers the image of the object to a film placed on a rotating drum. The drum and the four-sided mirror prism are kinematically so

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inter-connected that when the sides of the prism change over, the film displaces by one frame width. Insofar as the intermediate range does not coincide with the point of reflection in the mirror, the image is displaced by a certain amount corresponding to the displacement of the film during the same time interval. The recording frequency of the camera is 2 500 frames/sec with a 20 mm frame. The effective aperture equals 40 so that the exposure time is reduced to 10 millionths of a second and corresponds to a recording frequency of 100 000 frames/sec. The "Dynafax" camera of Beckman and Wheatley can record up to 25 000 frames/sec with exposures up to 1 millionth second and has a frame size of 7.5x10 mm. The film is on the inside of the rotating drum. Slow-motion devices with commutation of the image built on classical principles but having some improvements in design were shown at the Fourth International Congress by A. Skinner and T. Rankvist of Sweden. The present authors, together with Kevlishvili, have developed a method of increasing the recording frequency up to 30 million frames/sec. Multiple mirror reflection in a system

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with image commutation is used in the ЛФВ-1 (LV-1)[28] camera constructed at the Physical Chemistry Institute of the AS USSR. After traversing the objective lens and a collector lens, the light from the photographed object is reflected through two mirrors reversing its direction and enters a reversing system of lenses. The light which emerges from the system is once again reflected by a mirror at right-angles and, after a collector lens, an intermediate image of the object is produced in the region of two rotating mirrors. The mirrors rotate in opposite directions which causes the pencil of light to be reflected ten times. The speed of rotation of the pencil is twice the product of the number of reflections and the speed of rotation of the mirror. The finally reflected pencil is transmitted by a row of lenses to the film surface on the inside of a cylindrical guide surface. The same collector lens produces the image of an aperture diaphragm placed between the two lenses of the reversing system in the region of the final row of lenses. This image, in the course of its motion, performs the function of commutation.

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Modern High-speed Photography (Review)

An automatic electronic device emits the starting impulse for the phenomenon to be photographed when the required speed of the camera is achieved. An explosive type shutter shuts off the light. The frequency range extends from 2 million to 33 million frames/sec. Either 30 or 150 frame cameras of 12 or 5 mm are available. Reducing the frame width in the direction of unrolling to a small size leads to slot recording of fast processes. Such photo-recorders ensure a high resolution in time. Sometimes, the recording method serves to measure the speed of the process. The SFR instrument permits, apart from frame-by-frame recording, also continuous recording with slot unrolling with a time resolution down to 0.02 μs (unrolling speed of 5.4 km/sec. A more recent variant, ЖФР-1 (ZhFR-1), has been developed at the Physical Chemistry Institute. A twin objective lens system has an intermediate slot. The image is unrolled along the film by means of a multi-sided mirror prism. The device has an electromagnetic shutter and a high-speed explosive shutter. A dwell type photo-recorder for medium speeds of unrolling, designated ЖФР-2 (ZhFR-2), was

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also built at the institute for the study of gas-mixture detonations. With unrolling speeds of 50-4000 m/sec it has a synchronous motor drive. The principle of the grating type camera is discussed, leading to the decisive improvement by I.S. Courtney-Pratt who used a crossed grating with cylindrical lenses. The most advanced grating cameras are those having a fine structure grating with spherical lenses. Such gratings have been developed by the NIKFI. These were used for a high-speed grating camera PKC-1 (RKS-1) which ensures a frequency of up to 100 million frames/sec. An objective lens produces an image of the photographed object in the plane of a grating with spherical lenses which produces in a plane at a small distance behind it a grating image of the object. An intermediate objective produces an image of this plane on the photographic plate. The grating image is displaced by two mirrors rotating in opposite direction at 10 000 rpm. The photographic plate, after development, is re-positioned in the apparatus for decoding by means of an illuminator behind a diaphragm itself behind a frosted glass. A hinged mirror

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directs the light from the diaphragm into the optical system of the camera. The diaphragm exactly replaces the objective pupil. The rotating mirrors are stopped and displacement of the image is performed instead by moving the photographic plate frame. A synchronising device for the position of the image and the initial instant of the photographed phenomenon is provided. The fine structure grating of spherical lenses was greatly admired at the Fourth International Congress. Among the earliest electrical methods of high-speed photography is the use of a set of cameras by means of high-speed Kerr shutters working in sequence. Several frames with an interval of 1-2 μs each can be obtained. Pulse photography in the USSR possesses lamps with energies between 0.2 and 15 000 Joules. In Western Germany, as mentioned earlier, pulse-discharge lamps are sold together with the photographic equipment. These are capable of high pulse frequencies up to 140 000/second. Pulse lengths down to 0.01 μs have been obtained by H.E. Edgerton. X-ray high-speed photography, first introduced by Kingdom and Tenis was applied

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Electron-optical transducers can also be used as high-speed light shutters in conjunction with optical-mechanical devices. Electron-optical transducers do not yet ensure a sufficiently high optical resolution, particularly in systems with image intensification. There are 15 figures and 37 references: 21 Soviet, 13 English and 3 German.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR
(Institute of Physical Chemistry of the AS USSR)

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SHNIRMAN, G. L.

"The System of No Dead-Time Framing Cameras"

report presented at the 6th Intl. Cong. of High-Speed Photography, The Hague, 17-22 Sep '62

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SHNIRMAN, G. L., DUBOVIK, A. S., KEVLISHVILI, P. V., GRANIGG, A. B. KOROLOV, I. A.

"The High Speed No Dead-Time Framing Camera МФБ-1"

report presented at the 6th Intl. Cong. of High-Speed Photography, The Hague, 17-22 Sep '62

SHNIRMAN, G.L.; DUBOVIK, A.S.; KEVLISHVILI, P.V.; GRANIGG, A.B.; KOROLEV, I.A.

High-speed "ZhLV-1" time lapse camera. Zhur.nauch.i prikl. fot.i kin. 8 no.1:50-56 Ja-F '63. (MIRA 16:2)

1. Institut khimicheskoy fiziki AN SSSR.
(Cameras) (Photography, Time lapse)